Work Order ID 91694

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91694

Page

... D412-664-209TRN Accept *N900040100* Setup Start Revision ID: Item Name: Crosstube Turning Detail 15/10/2012 **Start Date:** Start Qty: 1.00 Cust Item ID: **Required Date: 29/10/2012** Req'd Qty: 1.00 **Customer:** Reference: ... Run Process Plan: MC5 Date: 12-10-1) Tooling: Date: _____ SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Accept Reject Reject Insp. Work Center ID Description Run Hours Code Qty Number Stamp Draw Nbr Revision Nor Rev B(DEO) ·D412-664-249 100 MORI SEIKI CNC LATHE LARGE *100* Mori Seiki Memo Mori Seiki CNC Lathe Large 1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA708 2-Turn first-side as per Folio FA708 3- File transition lines smooth. FOLIO REV: DWG REV: QC1- Inspect dimensions to dimension sheet 0.00 0.00 Memo Quality Control

NCR:	Yes /	' No

WORK ORDER NON-CONFORMANCE / UPDATE

11		· O	1.	
DQA:	Date:	12/11/10		
	7			

	.5 / 110			•	-					QA Closed:	(Date:	
Work Order Part No NCR No	D412	916 -664 2014	L-20	9TRN	DISPOSITION Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube Machining noforming Large Fab	AGAINST DE Crosstube Small Fab Finishing Composite	Pro	/PROCESS Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root			0.0		iption of work order update	- 1	Initial		tion	Sign &		- 40 M
Cause	Date	Step	Qty		or Non-conformance	Cł	nief Eng	Desci	ription	Date	Verification	QC Inspector
Ooc/Data Equip/Tooling Operator Material Setup	re/11/6	100	l	Well	thickness denotions above tolerance.	010	AS 12	Acceptal Min wal	ole. Is are	12 12	12.11.6	12-11-6
Other Process Supplier Training		7		*		ľ	2/11/6		variation raw	12/11/6		
Unapproved	_1						LT CATE	CORV	•		1	
Landin	· Coor	-			, , , , , , , , , , , , , , , , , , ,	FAU	LICATE	JURY	•			
Landin	Bending Centre No Cracks Crushed/o Cuffs Heat Trea Inspection Ripples in Torque W Turning So	Crimped. t n Strip in Bend laves in E	Tube		General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset Out of O	on Incomplete ions Incomplete/I nance led	Unclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
	Wave/Tw		e		Folio		1	Dimensions				

H:/fORMS/Quality Assurance\approved QA/ACRWO Rev G

RC! WALL THICK MSSS

October-15-12 2:39:37 PM

Item ID: D412-664-209TRN Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Turning Detail **Start Date:** 15/10/2012 Start Qty: 1.00 **Cust Item ID: Required Date: 29/10/2012** Req'd Qty: 1.00 **Customer:** Reference: Run Start Process Plan: Approvals: Date: Tooling: Date: Stop Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool # Plan Tool ID Accept Reject Reject Insp. **Work Center ID** Description **Run Hours** Code Qty **Qty** Number Stamp 120 0.00 MORI SEIKI CNC LATHE LARGE *120* Mori Seiki 0.00 Memo Mori Seiki CNC Lathe Large 1-Turn second side as per Folio FA708 2- File transition lines smooth. 3- Remove sand and plugs 4-Scribe part # and batch # using vibrating stylus as per Dwg D412-664-Inside of Cuff(Donot engrave on outside of tube) FOLIO REV: DWG REV: 130 QC1- Inspect dimensions to dimension sheet 0.00 QC 0.00 Memo Quality Control

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					10		-					DQA:	Date:	
NCR:	Yes	/ No				WORK ORD	DER NON-C	ONFO)RN	MANCE / UPDATE				
												QA Closed:	Date	
Work Ord	er:					DISPO	SITION	Ŀ		AGAIN	ST DE	PARTMENT	PROCESS	
Part f	No.					Work Ord	Rework Scrap Use-as-is er Update	Th	N nerm	Skid-tube Crosstu Machining Small F noforming Finishi Large Fab Compos	ab ing		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work or	der update	Initia	al	Action		Sign &		
Cause		Date	Step	Qty	(or Non-conforma	ance	Chief E	Eng	Description		Date	Verification	QC Inspector
Doc/Data														
Equip/Tooling	П			į	-	·	4						(.)	
Operator							•							
Material														
Setup														
Other												-		
Process	П			<u> </u>										
Supplier														
Training							0.0							
Unapproved	-	*											:	
			4	L			· F/	AULT CA	ATEC	GORY		•		
Landi	ng G	Gear				Genera	al							,
		Bending			•	Bend		Gra	in			Ovalized		Pressure/Forced
		Centre No	ot Concer	ntric to	o/s	BOM/Route		Har	dwa	re		Over/Under	tolerance	Temperature/Cure
	\vdash	Cracks				Broken/Damag	ed			on Incomplete		Part Incorre	 	Weld
	_	Crushed/	Crimped			Burrs	A 12	— `		ions Incomplete/Unclear		Part Lost/Mi		Wrong Stock Pulled
	-	Cuffs			<u> </u>	Contamination		⊢ ⊣		nance		Part Moved		
	$\boldsymbol{\vdash}$	Heat Trea	t		1 4	Countersink	4		labe			Positioned V	Vrong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Other

Power Loss/Surge

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

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Page 3

Item ID: D412-664-209TRN Accept *N900040100* Setup Start **Revision ID: Item Name:** Crosstube Turning Detail **Start Date:** 15/10/2012 Start Qty: 1.00 **Cust Item ID: Required Date:** 29/10/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Process Plan: Approvals: Date: Tooling: Date: QC: Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Reject Tool ID Tool # Plan Reject Accept Insp. **Work Center ID** Description **Run Hours** Code Qty Qty Number Stamp 140 QC8- Inspect parts - second check 0.00 *140* 12-11-7 OC 0.00 Memo Quality Control 150 0.00 Rm 17-11-7 *150* HandFXtube 0.00 Memo Hand Finishing Crosstubes 1- PRESSURE WASH X-TUBE INSIDE AND OUT 2- ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE 160 QC5- Inspect part completeness to step on W/O 0.00 *160* QC 0.00 Memo Quality Control

												DQA:	Da	ate: _	
NCR:	Yes	/ No				WORK ORDER NON-O	100	NFORM	//ANCE / UP	DATE					
ž.												QA Closed:	Da	ate:	
Work Ord	or.					DISPOSITION				AGAINST [ΣE	PARTMENT,	PROCESS		
Work Ordi	CI.					Rework	1		Skid-tube	Crosstube		1	Water Jet		Engineering
Part I	Vo.					Scrap			Machining	Small Fab		Pro	d. Eng. Coor.	\vdash	Quality
		•				Use-as-is			noforming	Finishing		4	e/Packaging	-	Other
NCR I	Vo.					Work Order Update]		Large Fab	Composite [Supplier	í	
					I 6 ·			*. * 1				l s: 0			
Root		.	<u>.</u>	۵.	1	ption of work order update		nitial		ction		Sign &			
Cause	_	Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desc	cription		Date	Verification	חנ	QC Inspector
Doc/Data	_														
Equip/Tooling														ļ	- to
Operator															
Material														1	
Setup					1									ļ	
Other															
Process									9						
Supplier															
Training															
Unapproved								:							
				<u> </u>		F	AUL	T CATE	GORY	_			·		
Landi	ng (Gear				General									-
		Bending				Bend		Grain				Ovalized			Pressure/Forced
		Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa	re	Ī		Over/Under	tolerance		Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	on Incomplete			Part Incorre	ct		Weld
		Crushed/0	Crimped.			Burrs		1	ions Incomplete	/Unclear		Part Lost/M	issing		Wrong Stock Pulled
		Cuffs	•			Contamination		Mainte	•	45		Part Moved	-		. ~

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

October-15-12 2:39:37 PM

Item ID:

D412-664-209TRN

Accept

N900040100

Setup Start

Page 4

Revision ID: Item Name:

Crosstube Turning Detail

Start Date:

15/10/2012 Start Oty: 1.00 **Req'd Qty:** 1.00

Date:

Cust Item ID:

Customer:

Tool ID

Reference:

Approvals:

Required Date: 29/10/2012

Process Plan: Date:

Tooling: SPC (Y/N):

Date: Date:

Tool # Plan

Code

Run

Reject

Qty

Sequence ID/ Work Center ID

170

170

Packaging Packaging

Operation:

Description

Packaging

Identify and stock in kanban rack

Location:

QC21- Final Inspection - Work Order Release

180

120

OC Quality Control

Memo

0.00

Set Up/

Run Hours

0.00

0.00

0.00

Accept

Qty

Start

Stop

Reject Insp.

Number Stamp

17-11-7

Work Order: Part No.	
Part No. Part No. Skid-tube Crosstube Mater Jet Engineering Machining Small Fab Prod. Eng. Coor. Quality	
Cause Date Step Qty or Non-conformance Chief Eng Description Date Verification QC Inspect Doc/Data Equip/Tooling Operator Material Image: Conformance of the properties of the p	ty
Doc/Data Equip/Tooling Operator Material	
Equip/Tooling Operator Material	ctor
Setup Other Image: Control of the contr	
FAULT CATEGORY	
Landing Gear General	
Bending Bend Grain Ovalized Pressure/Forced Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/C Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld Crushed/Crimped. Burrs Instructions Incomplete/Unclear Part Lost/Missing Wrong Stock Pu Cuffs Contamination Maintenance Part Moved Part Moved Part Moved Positioned Wrong Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Other Ripples in Bend Drill Holes Offset	e/Cure
Torque Waves in Extrusion Drawing Out of Calibration Unity of Sequence	

Outside Dimensions

DQA:

Date: _

Wave/Twist in Tube

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Picklist Print

October-15-12 2:39:40 PM

Work Order ID: 91694

D412-664-209TRN

Parent Item Name: Crosstube Turning Detail

91694

D412-664-209TRN

Start Date: 15/10/2012

Required Date: 29/10/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

Parent Item:

IPP Rev:A New Issue 08-03-06 DD verified by:ec

IPP Rev B 08.04.02 Removed polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6009-129		Manufactured	No			110	Each	1.0000	1	1			harm
D6009-12	99								**				

Crosstube Material

Location Loc Qty Loc Code LG 69801

75630

1 grand 12/11/1

Page 1

NCR:	Yes	/ No				WORK ORDER NON-	CO	NFOR	MANCE / UPI	DATE			
									-		QA Closed:	Date:	
Work Orde	er:					DISPOSITION	_		·	AGAINST DE	PARTMENT		
Part f	•					Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	-	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update	1	Initial	Act	ion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Cł	nief Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material					N.	ž .							
Setup Other Process Supplier Training Unapproved													
							FAU	LT CATE	GORY				
Landi		Bending Centre No Cracks Crushed/i Cuffs Heat Trea Inspection Ripples in	Crimped, it n Strip in Bend	Tube		General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		Instruct Mainte Mislabe Misread Offset	ion Incomplete cions Incomplete/U enance eled	Jnclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ssing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
	L_I	Torque W	raves in E	extrusion	۱ ا	Drawing		Out of (Calibration				

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	91694
Description: Crosstube Assembly (412 Low Aft)	Part Number:	D412-664-249
Inspection Dwg: D412-664-249 Rev: B		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

	nspection Sheet awing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
	0.625	+/-0.010	.625			vers	ewc-08
	2.680	+0.005/-0.000	2.681				0.000
	2.680	+0.005/-0.000	2687				
	2.687	+0.005/-0.000	2.690				
	2.793	+0.005/-0.000	2.798				
_	2.930	+0.005/-0.000	2.934				
В	3.067	+0.005/-0.000	3070				
SIDE	3.205	+0.005/-0.000	3,209				
0,	3.358	+0.005/-0.000	3.358				
	3.378	+0.005/-0.000	3.382	/			
	3.500	+0.005/-0.000	3,500			1/	
	0.625	+/-0.010	,625			vern	CWC-08
	2.680	+0.005/-0.000	2.687		, ,		
	2.680	+0.005/-0.000	2683				
	2.687	+0.005/-0.000	2.690				
	2.793	+0.005/-0.000	2-798				
	2.930	+0.005/-0.000	2.934		·		
8	3.067	+0.005/-0.000	3.071				
SIDE	3.205	+0.005/-0.000	7.209				
တ	3.358	+0.005/-0.000	3-367				
	3.378	+0.005/-0.000	3,340				
	3.500	+0.005/-0.000	3-900			1	
	0.127.82	+/-0.020	127.830			tape	16-22

												DQA:	Da	te:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFOR	MANCE / UPI	DATE		·	_		
						•						QA Closed:	Da	te:	
Work Ord	er.					DISPOSITION				AGAINST [ЭE	PARTMENT	PROCESS		
WORK OTG	C1.					Rework	٦.		Skid-tube	Crosstube	_	1	Water Jet	$\overline{}$	Engineering
Part I	No.					Scrap	1		Machining	Small Fab		Pro	d. Eng. Coor.		Quality
						Use-as-is	1		noforming	Finishing	_	₹	e/Packaging		Other
NCR f	۷o.					Work Order Update	1	B.	Large Fab	Composite		Í	Supplier	_	
						·	_		<u> </u>	_		<i>-</i>			
Root					Descr	ription of work order update		Initial	Act	tion		Sign &			
Cause		Date	Step	Qty		or Non-conformance	Ch	nief Eng	Desci	ription		Date	Verification	n	QC Inspector
Doc/Data	<u> </u>				Ī										
Equip/Tooling					•									,	
Operator				ļ											
Material															
Setup														l	
Other														i	
Process					٠.										
Supplier															
Training							1								
Unapproved					1										
						F	AUI	T CATE	GORY						
Landi	ng (Gear				General		_	,	_		_			_
		Bending				Bend		Grain				Ovalized			Pressure/Forced
		Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa	re	[Over/Under	tolerance		Temperature/Cure
		Cracks			· . [Broken/Damaged		Inspecti	on Incomplete			Part Incorred	ct		Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/l	Unclear		Part Lost/Mi	ssing	1	Wrong Stock Pulled

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Part Moved

Positioned Wrong

Power Loss/Surge

Other

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Cuffs

Heat Treat

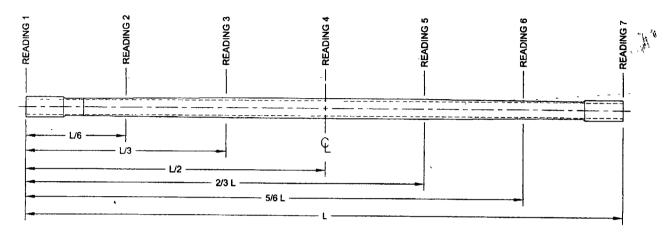
Inspection Strip in Tube

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	91694
Description: Crosstube Assembly (412 Low Aft)	Part Number:	D412-664-249
Inspection Dwg: D412-664-249 Rev: B		Page 2 of 2

WALL THICKNESS MEASUREMENT



	WALL	THICKNESS I	MEASUREMEN	NT (IN)	Deviation	
Location	w1	w2	w3	w4	Δw (max-min)	TOLERANCE
READING 1 L= 0"	,217	.239	250	,230	.033	
READING 2	1.204	262	.295	248	[.091]	20.22 B
READING 3	.365	.436	.464	.399	[.099]	Dug= 0.352
READING 4	-643	640	. 655	. 636	.019	0.073"
READING 5	.452	.417	1373	.40L	1.079	
READING 6	. 250	-258	,252	.242	-016	
READING 7	1234	,233	.235	.236	.003	

Calibration Result

Actual Block Thickness: *160 . Soo

Sitescan 250 Measured Thickness: 160 -500

Measured by: AMM, L	Audited by:	Preliminary Approval:	
Date: 2/11/05	Date: 17-11-8	Date:	

Rev	Date	Change	Revised by	Approved
Α	08.11.07	New Issue (P/O D212-664-209)	KJ/EC	
В	10.11.12	Dwg Rev updated	KJ A	17
В	12.06.04	Wall thickness form added	KJ -H	I M

)					DQA:	Date	e:	
NCR:	Yes	/ No					WORK ORDER NON-C	100	VFORI	/ANCE / UP	DATE				
												QA Closed:	Date): -	
Nork Ord	er:						DISPOSITION				AGAINST DE	PARTMENT	/PROCESS		·
Part NCR∳							Rework Scrap Use-as-is Work Order Update			Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Large Fab Composite			Water Jet d. Eng. Coor. re/Packaging Supplier		Engineering Quality Other
Root Description of work order update Initial Action Sign &															
Cause		Date	Step	Qty			or Non-conformance	Ch	ief Eng	Descr	iption	Date	Verification		QC Inspector
oc/Data quip/Tooling perator laterial etup ther rocess upplier raining															
							F/	AUL	T CATE	GORY					
Landi	ng (1			,		General		1			7	_	_	
	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs						Bend BOM/Route Broken/Damaged Burrs Contamination		Grain Hardware Inspection Incomplete Instructions Incomplete/Unclear Maintenance			Ovalized Over/Under tolerance Part Incorrect Part Lost/Missing Part Moved			Pressure/Forced Femperature/Cure Weld Wrong Stock Pulled
ı		Heat Treat Countersink							Mislabe	led		Positioned V	Vrong _		
	Inspection Strip in Tube Cut Too Short								Misread	l		Power Loss/	Surge	C	Other
		Ripples in					Drill Holes		Offset						
		Torque W	aves in E	xtrusio	ո [Drawing		Out of (Calibration					
		Turning Se	equence				Finish		Out of S	equence					

Outside Dimensions

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Wave/Twist in Tube

Item	Qty -249	Part Number	Description
1	х	D412-664-249	CROSSTUBE ASSEMBLY (412 LOW AFT)
2	1	D6009-129	CROSSTUBE
3	2	D2856-600-1009	ABRASION STRIP
4	. 1	D2896-1	SUPPORT
5	2	D3189-1	CHAFING SHIELD
_ 6	2	D3595-063-570	RUBBER CUSHION
7	2	D3660-1	CUFF
8	44	CR3212-4-07	RIVET (OR M7885/3-4-07)
9	4	MS21920-28	CLAMP
10	2	MS21920-30	CLAMP (OR MS21920-32)
11	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC 299-947-100, TYPE II CLASS 2 ADHESIVE)
12	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

D

С

В

- 1) MATERIAL MANUFACTURED FROM D6009-129
- FINISHED LENGTH = 127.826±0.020 (BEFORE BENDING/TRIMMING)
- CHEMICAL CONVERSION COAT PER DART QSI 005 4 1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4 2
- PAINT OUTSIDE PER DART OSI 018 UNLESS OTHERWISE NOTED
- UNITS. INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
 IDENTIFICATION: SCRIBE DART PART NUMBER "D412-664-249" AND BATCH NUMBER ON INSIDE OF CUFF
- USING VIBRATING STYLUS. WEIGHT 42 5 lbs (PER IIN-D212-664)
- PART IS SYMMETRIC ABOUT CENTERLINE.
- WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6%
- BASED ON O. D. EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.

 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038

 12) INSTALL D2896-1 SUPPORT USING 0.03 TO 0.05 THICK LAYER OF MACROBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015 LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS192-03 CLAMPS (OR 32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0 13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI
- 15) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY CIRCUMFERENTIAL GRIND MARKS ARE
- UNACCEPTABLE.

 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS
- 10) IONGUE COMMES ON TO TOURING ENGINEERS THE PROTECTION OF THE COMMES OF THE TOURING THE SIKAFLEX-241/-291 OR PROSEAL 890 OR MILS-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE SEAL EDGE OF CUFF TO ENSURE NO GAPS
- 18) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT

Branch Y FILLRATU TNGINETICE UNCONTROLLED COR. SCRIFCT TO AMPEDIAGED WITHOUT SOFTER WORK ORDER MLJ 12-10-15

ODEO ATTACHED

В	REVISE STANDA		NOTES; UPDATE TO CURRENT	RF	09.09.30				
Α	NEW ISS	UE		СР	07.07.07				
REV.			DESCRIPTION	BY	DATE				
DESIGN		9	DART AEROSP	ACE	LTD				
DRAWN		RF	HAWKESBURY, ONTARIO, CANADA						
CHECK	ED T	97	DRAWING NO.		REV. B				
MFG. AF	PPR.	$\overline{\mathcal{R}}$	D412-664-249		SHEET 1 OF 4				
APPRO\	/ED	140	TITLE ESS &		SCALE				
DE APPI	₹.		CROSSTUBE (412 LOW AF	FT)	NTS				
DATE	09.09	.30	COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE COMPLESS CONDITION THAT IS NOT TO BE USED FOR ANY PURPOSE OF COMED OR COMMUNICATED TO ANY OTHER PERSON WITHOU WHITTEN PERMISSION FROM ANY PERMISSION FROM DART AEROSPACE TO.						

								-				DQA:	Da	ate:	
NCR:	Yes	/ No				WORK ORDER NON-C	100	VFORM	MANCE / UPI	DATE		QA Closed:		ata:	
							_	T			_	QA Closed.	D.	ate:	
Work Ord	or.					DISPOSITION				AGAINST D	E	PARTMENT	PROCESS		
WOLK OLD	CI.					Rework	1	Skid-tube Crosstube			\neg		Water Jet	·	Engineering
Part f	No.					Scrap		l	Machining Small Fab			Prod. Eng. Coor.			Quality
	•					Use-as-is		noforming	Finishing	┪		e/Packaging	-	Other	
NCR I	No.					Work Order Update			Large Fab	Composite		•	Supplier	-	
	-									_					
Root					Descri	ption of work order update		Initial	Act	ion		Sign &			
Cause		Date	Step	Qty	C	or Non-conformance	Ch	nief Eng	Descr	ription	_	Date	Verification	on_	QC Inspector
Doc/Data											-	į			
Equip/Tooling	Ц														
Operator	Ш												1		
Material							į								
Setup	Ш														
Other	Щ		:												
Process	Ш														
Supplier			į												
Training	Щ				•										
Unapproved			<u> </u>												
		-					AUL	T CATE	GORY				-		
Landi						General		1		r		l			1
	-	Bending				Bend	_	Grain		}-		Ovalized		\vdash	Pressure/Forced
	-	Centre No	ot Concer	ntric to	^{O/S}	BOM/Route	<u> </u>	Hardwa		-	_	Over/Under		-	Temperature/Cure
	Н	Cracks			<u> </u>	Broken/Damaged	_	4	on Incomplete	<u> </u>		Part Incorre		\vdash	Weld
	-	Crushed/0	Crimped.			Burrs	\vdash	1	ions Incomplete/l	Jnclear		Part Lost/Mi	ssing	L_	Wrong Stock Pulled
	Н	Cuffs			ļ	Contamination	<u> </u>	Mainte		<u> </u> -		Part Moved			
		Heat Trea			ļ	Countersink	<u> </u>	Mislabe		-		Positioned V	-		1 .
	-	Inspection		Tube		Cut Too Short	<u></u>	Misread	I	L		Power Loss/	Surge	L	Other
	1 1	Ripples in	Bend			Drill Holes	1	Offset							

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

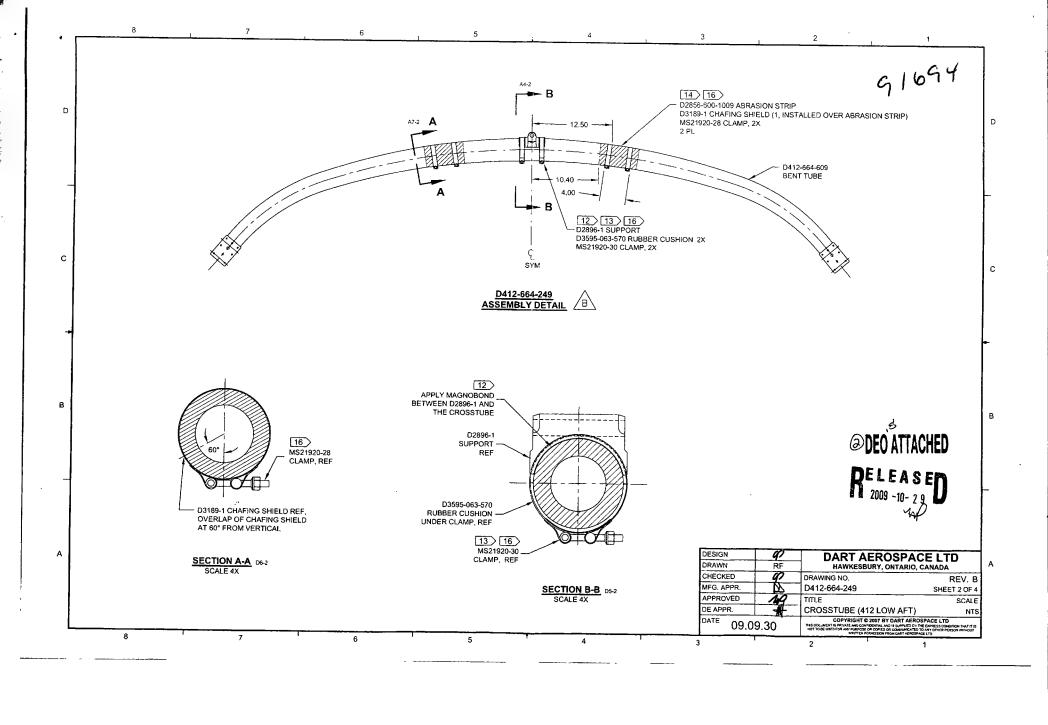
Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G



NCR:	NCR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE													
						<u> </u>				- 	QA Closed:	Date	2:	
Work Ord	er:					DISPOSITION		AGAINST DEPARTMENT/PROCESS						
Part I						Rework Scrap	Skid-tube Crosstube Machining Small Fab			Pro	Water Jet d. Eng. Coor.	Engineering Quality		
NCR I	No.								Finishing Composite	Rec/Sto	re/Packaging Supplier	Other		
Root			<u> </u>		Descri	ption of work order update	of work order update		Act	tion	Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	ription	Date	Verification	QC Inspector	
Doc/Data														
Equip/Tooling												:		
Operator			İ											
Material														
Setup	-													
Other														
Process														
Supplier Training	Н													
Unapproved	Н													
Опаррточеи	L		l	1	L			T CATE	SORY			<u> </u>		
Landi	ng (Gear				General		·····						
		Bending				Bend	Г	Grain			Ovalized	Γ	Pressure/Forced	
	-	Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure	
		Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorre	}-	Weld	
		Crushed/0	Crimped.			Burrs		l	ions Incomplete/l	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled	
		Cuffs				Contamination		Mainte	nance		Part Moved	- L		
		Heat Trea	t			Countersink		Mislabe	led		Positioned V	Vrong		
		Inspection	n Strip in	Tube		Cut Too Short		Misread	I		Power Loss/	Surge	Other	
		Ripples in	Bend			Drill Holes		Offset			•	_	•	
		Torque W	aves in E	xtrusio	n [Drawing		Out of 0	Calibration					
Turning Sequence						Finish		Out of Sequence						

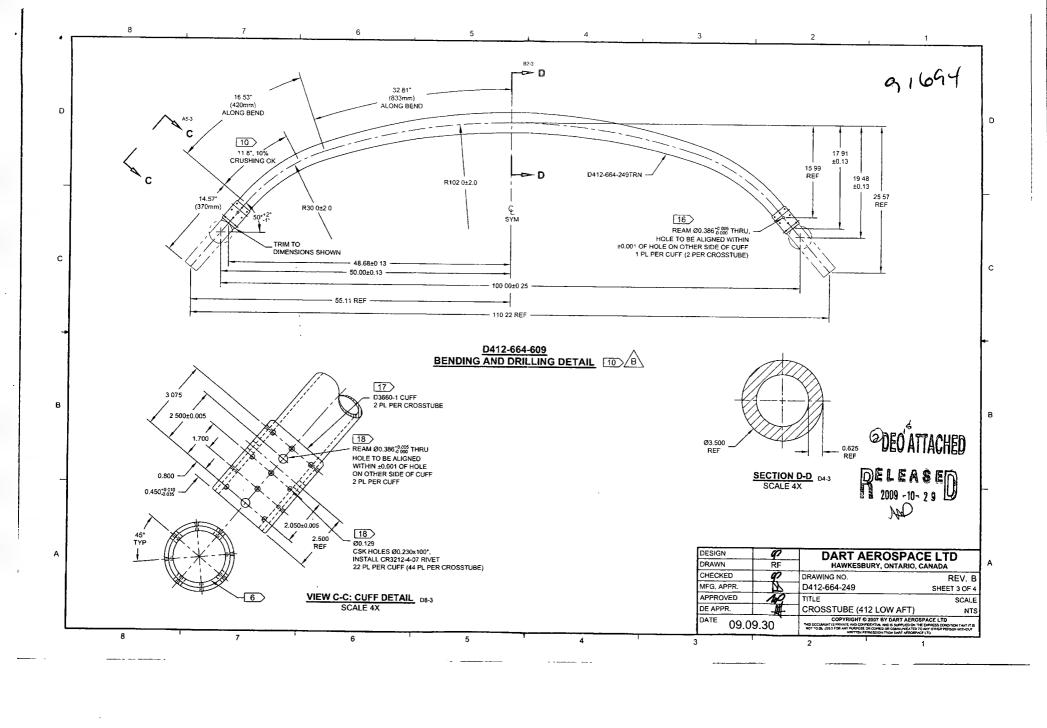
Outside Dimensions

DQA:

Date:

Wave/Twist in Tube

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G



NCR: Yes / No	WORK ORDER NON-CO	NFORMANCE / UPDATE
		QA Closed:
Work Order:	DISPOSITION	AGAINST DEPARTMENT/F
	Rework	Skid-tube Crosstube
Part No.	Scrap	Machining Small Fab Prod

Work Order Update

Description of work order update

or Non-conformance

General

Bend

BOM/Route

Broken/Damaged

Use-as-is

	DQA:	Da	te:
ATE	QA Closed:	Da	te:
AGAINST DE	PARTMENT	/PROCESS	
Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Quality Other
on otion	Sign & Date	Verification	n QC Inspector
· ;			
nclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other

	Crushed/Crimped.	Burrs	Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled
	Cuffs	Contamination	Maintenance	Part Moved	
	Heat Treat	Countersink	Mislabeled	Positioned Wrong	
	Inspection Strip in Tube	Cut Too Short	Misread	Power Loss/Surge	Other
	Ripples i Bend	Drill Holes	Offset		
	Torque Waves in Extrusion	Drawing	Out of Calibration		
	Turning Sequence	Finish	Out of Sequence		
	Wave/Twist in Tube	Folio	Outside Dimensions		
:/FORMS/Qua	lity Assurance\approved QA/NCRWO Rev G				

FAULT CATEGORY

Grain

Hardware

Inspection Incomplete

Thermoforming

Initial

Chief Eng

Large Fab

Action

Description

NCR No.

Landing Gear

Bending

Cracks

Crushed/Crimped.

Date

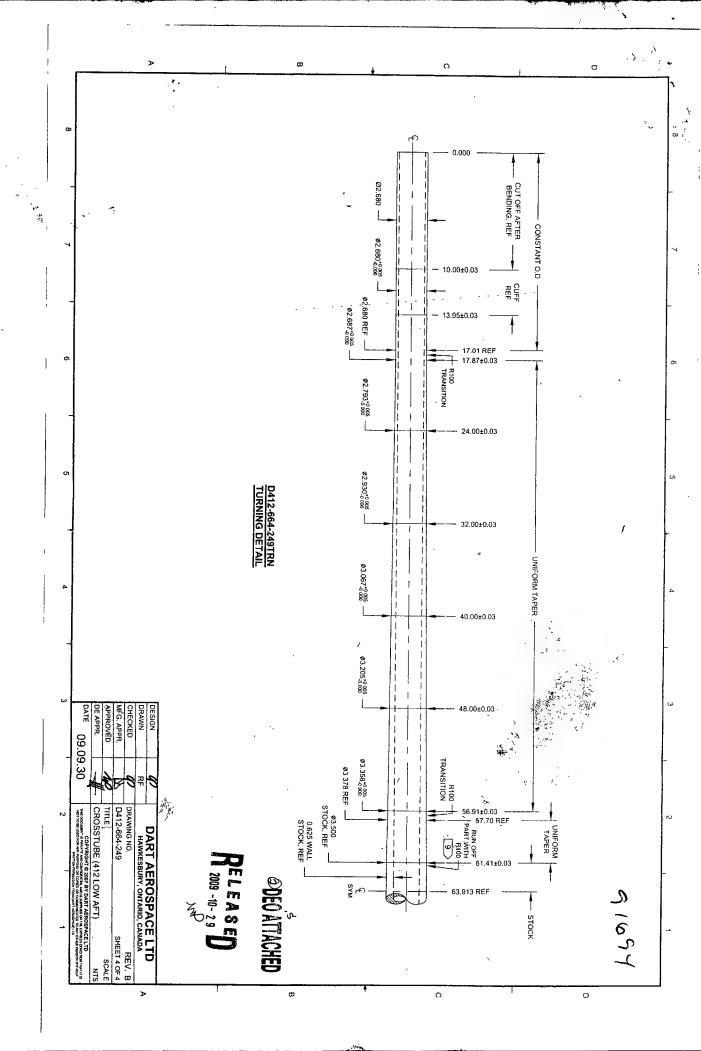
Step

Centre Not Concentric to O/S

Qty

Root Cause

Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved



2335

£ 2

											DQA:	Dat	te: _	
NCR:	Yes	/ No				WORK ORDER NON-C	100	NFOR	MANCE / UPD	DATE				
									-		QA Closed:	Dat	te:	
Work Ord	er.					DISPOSITION				AGAINST DE	PARTMENT,	/PROCESS		
Part NoNCR No						Rework Skid-tube Crosstube Scrap Machining Small Fab Use-as-is Thermoforming Finishing Work Order Update Large Fab Composite			Small Fab Finishing	Prod. Eng. Coor Rec/Store/Packaging			Engineering Quality Other	
Root					Descri	ption of work order update	ı	nitial	Acti	ion	Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	iption	Date	Verification	n	QC Inspector
Doc/Data														• "
Equip/Tooling				1										
Operator														
Material		<u> </u>					1							
Setup							ŀ							
Other													1	
Process														
Supplier	Г													
Training	Г						İ						l	
Unapproved														
						F	AUL	T CATE	GORY					
Landi	ng (Gear				General		_			_			
		Bending				Bend		Grain			Ovalized			Pressure/Forced
	Centre Not Concentric to O/S					BOM/Route		Hardwa	ire		Over/Under	tolerance	\Box	Temperature/Cure
	Cracks					Broken/Damaged		Inspect	ion Incomplete		Part Incorre	ct	П١	Weld
		Crushed/0	Crimped.			Burrs		Instruct	tions Incomplete/U	Inclear	Part Lost/M	issing	$\prod_{}$	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	enance		Part Moved			
	Heat Treat					Countersink		Mislabe	eled		Positioned V	Vrong		

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DRAWING	NO. TITLE		5517.5				<u> </u>
t		TIDE	REV. B			SHEET NO.	SCALE
D412-66	94-249 CROSS	STUBE ASS'Y (112 LOW AFT)	ENGINEERING ORD	ER D412-664-249-B ₋ 1	SHEET 1 OF 2	NTS
DRAWN	<u> P</u>	CHECKED	Sc	MFG. APPR.	APPROVED M	DE APPR.	
DATE	11.05.25	DATE	11.05.31	DATE /(,05.3/			,
					DATE 11/05/37	DATE 11.05.3	·

PURPOSE:

REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890.

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

<u> IS:</u>

Item	Qty -249	Part Number	Description
3	0	D2856-600-1009	ABRASION STRIP

WAS:

3	2	D2856-600-1009	ABRASION STRIP
L			

NOTE 14, SHEET 1 IS AMENDED AS FOLLOWS:

<u>IS:</u>

14) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3189-1 CHAFING SHIELD ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.

WAS:

14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.



											DQA	: Dat	te:	
NCR:	Yes	/ No				WORK ORDER NON-C	100	NFORM	MANCE / UPD	DATE				
						_			-		QA Closed	: Dat	te:	
Work Ord	er.					DISPOSITION				AGAINST DE	PARTMEN	T/PROCESS		
Part I	٠ No.					Rework Scrap Use-as-is Work Order Update		1 Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	4	Water Jet od. Eng. Coor. ore/Packaging Supplier		Engineering Quality Other
Root					Descri	ption of work order update		Initial	Acti	ion	Sign &			
Cause		Date	Step	Qty		or Non-conformance	Ch	nief Eng	Descri	iption	Date	Verification	1	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved														
							AUL	T CATE	GORY					
Landi		Bending Centre No Cracks Crushed/C Cuffs Heat Trea Inspection	Crimped, t n Strip in		o/s	General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short		Instruct Mainte Mislabe Misreac	on Incomplete ions Incomplete/U nance led	Inclear	Ovalized Over/Under Part Incorre Part Lost/N Part Movee Positioned Power Loss	Aissing d Wrong		Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
	1 1	Ripples in	Bend			Drill Holes	1	Offset						

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

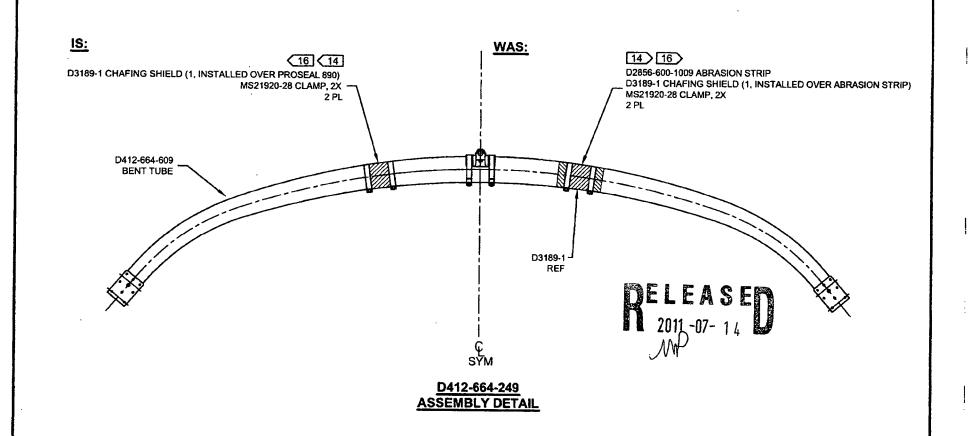
Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DRAWING	NO.	TITLE		REV. B	DART AEROSPACE I	TD	D.E.O. NO.	SHEET NO.	SCALE
D412-664	1-249	CROSST	UBE ASS'Y (4		ENGINEERING ORD		D412-664-249-B-1	SHEET 2 OF 2	NTS
DRAWN	92		CHECKED	Sc	MFG. APPR.	Al	PPROVED W	DE APPR.	
DATE	11.05.2	25	DATE	11.05.31	DATE 11.05.3(D/	ATE 11/05/3)	DATE 11.05,31	



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NCR: \	es / No				WORK ORDER NON-C	CONF	OKN	MANCE / UP	DAIE	QA Closed:	Date:	
Work Orde	or:				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	•
Part N					Rework Scrap		ľ	Skid-tube Nachining	Crosstube Small Fab	Pro	Water Jet d. Eng. Coor.	Engineering Quality
NCR N	No				Use-as-is Work Order Update] T		noforming Large Fab	Finishing Composite	Rec/Sto	re/Packaging Supplier	Other
Root				Descri	ption of work order update	Initi	ial	Ac	tion	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chief	Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling												
Operator		-										
Material												
Setup												
Other												
Process												
Supplier												
Training			-									
Unapproved		1				<u> </u>						1
				 		AULT C	AIE	JORY				
Landii	ng Gear			_	General		:		_]	Γ	7
	Bending	lot Conce	ntrio to 1		Bend BOM/Route	\vdash	ain rdwa		<u> </u>	Ovalized	talaranas	Pressure/Forced Temperature/Cure
	Cracks	iot conce	mune to	^{0/3}	Broken/Damaged	\mathbf{H}		re on Incomplete	<u> </u>	Over/Under Part Incorre	1	Weld
	—	/Crimped		-	Burrs	\vdash		ions incomplete/	Unclose	Part Lost/Mi	-	Wrong Stock Pulled
	Cuffs	Cimpeu	-	\vdash	Contamination	\vdash		nance	Unclear	Part Moved	1551118	
	Heat Tre	at			Countersink	\vdash	slabe			Positioned V	Mrong	
		on Strip in	Tube		Cut Too Short	-	sread		<u> </u>	Power Loss/		Other
	Ripples i	•			Drill Holes		fset		<u></u>]. 04461 2033/		Tourier
		Waves in E	Extrusio	, <u> </u>	Drawing	\vdash		Calibration				
	_	Sequence			Finish	\vdash		equence				

Outside Dimensions

DQA:

Date:

Wave/Twist in Tube

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DRAWING NO.	TITLE			AEROSPACE		. NO.	SHEET	NO.	SCALE
D412-664-249	CROSSTUB	E ASS'Y (412 LOW	AFT) ENG	INEERING ORD	ER D41:	2-664-249-B-2	SHEET 1	OF 1	NTS
DRAWN	P	CHECKED AS	MFG. A	PPR. E	APPROVE	D MAP	DE APPR.	W	
DATE 11.0	9.07	DATE //, 0	7.19 DATE	16.09-19	DATE	11.09.19	DATE	1.09.19	

PURPOSE:

REPLACE MAGNOBOND WITH 3M DP460 SCOTCH-WELD EPOXY ADHESIVE

CHANGE:

IS:

item	Qty -249	Part Number	Description
11	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD

WAS:

11	A/R	ROCKWELL SPECIFICATION RBO-120-023
		ADHESIVE (TEXTRON/BELL SPEC, 299-947-100,
		 TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 16, SHEET 1 IS AMENDED AS FOLLOWS:

18

- 12) INSTALL D2896-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

WAS:

- 12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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								MANCE / UPI		QA Closed:	Date	: :
er: _					DISPOSITION						/PROCESS	
10. 10					Rework Scrap Use-as-is Work Order Update		Thern	Machining noforming	Crosstube Small Fab Finishing Composite	ł	d. Eng. Coor.	Engineering Quality Other
	Date	Step	Qtv		•	1				Sign & Date	Verification	QC Inspector
						AUI	T CATE	GORY				
	Bending Centre No Cracks Crushed/ Cuffs Heat Trea Inspection	Crimped. at n Strip in 1 Bend	Tube		Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		Inspecti Instruct Mainte Mislabe Misread Offset	ion Incomplete ions Incomplete/ enance eled	Unclear	Part Incorre Part Lost/M Part Moved Positioned V	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
	ng G	Date Date Bending Centre No Cracks Crushed/ Cuffs Heat Trea Inspectio Ripples in	Date Step Date Step Bending Centre Not Concer Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Ripples in Bend	Date Step Qty Date Step Qty Bending Centre Not Concentric to C Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend	Date Step Qty Description Date Step Qty Description D	Rework Scrap Use-as-is Work Order Update Date Step Qty Description of work order update or Non-conformance Bending Centre Not Concentric to O/S BOM/Route Broken/Damaged Burrs Cracks Broken/Damaged Burrs Contamination Countersink Inspection Strip in Tube Ripples in Bend Drill Holes	Rework Scrap Use-as-is Work Order Update Date Step Qty Description of work order update or Non-conformance FAUI Bending Bend General Bending Bend Bend BoM/Route Cracks Broken/Damaged Crushed/Crimped Burrs Crushed/Crimped Contamination Heat Treat Countersink Inspection Strip in Tube Ripples in Bend Cust Too Short Ripples in Bend Cut Too Short Drill Holes	Rework Scrap Use-as-is Work Order Update Date Step Qty Description of work order update Chief Eng Date Step Qty Description of work order update or Non-conformance Chief Eng	Rework Scrap Use-as-is Work Order Update Unitial Actions FAULT CATEGORY Bear General Bending Centre Not Concentric to O/S Cracks Cracks Broken/Damaged Crushed/Crimped. Cuffs Contamination Customs Instructions Incomplete (Instructions Incomplete	Rework Scrap Use-as-is Work Order Update Use-as-is Work Order Update Initial Action Description Date Step Qty Description of work order update or Non-conformance Chief Eng Description FAULT CATEGORY Rework Scrap Machining Small Fab Thermoforming Large Fab Composite Finishing Composite Action Description FAULT CATEGORY Regear General Bending General Bending Grain Hardware Inspection Incomplete Inspection Incomplete Cracks Broken/Damaged Inspection Incomplete Crushed/Crimped. Burrs Instructions Incomplete/Unclear Cuffs Contamination Maintenance Maintenance Inspection Strip in Tube Cut Too Short Mislabeled Ripples in Bend Drill Holes Offset	DISPOSITION Rework Skid-tube Crosstube Small Fab Pro Machining Small Fab Pro Rec/Store Large Fab Composite Pro Rec/Store Large Fab Composite Rec/Store Rec/Store Large Fab Composite Rec/Store DISPOSITION Rework Scrap Use-as-is Work Order Update Date Step Qty Description of work order update Or Non-conformance FAULT CATEGORY General Bending Centre Not Concentric to O/S Cracks Cra	

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DRAWING NO.	TITLE		551							
	TITLE		REV. B	DARTAE	ROSPACE L	TD	D.E.O. NO).	SHEET NO.	SCALE
D412-664-249	CROSSTUE	BE (412 LO)	V AFT)	ENGINE	ERING ORDE	R	D412-66	64-249-B-3	SHEET 1 OF 3	NTS
DRAWN 4	2	CHECKED		MFG. APPR.	77	AP	PROVED	10	DE APPR.	
DATE 12.0	3.21	DATE	12.08.30	DATE	12.08.30	DA	TE	12.08.30	DATE 12-08.30	

PURPOSE:

REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890. UPDATE INSTALLATION OF CHAFING SHIELDS AND REDUCE TORQUE TO 40-50 IN-LBS. THIS ENGINEERING ORDER SUPERCEDES DEO D412-664-249-B-1

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

IS:

Item	Qty -249	Part Number	Description
3	-0-	D2856-600-1009	ABRASION STRIP

DELEASEJ 1 2012 -09- 04 1 1 2012 -09- 04

WAS:

. 3	2	D2856-600-1009	ABRASION STRIP

NOTE 14 AND 16 ON SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 14) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3189-1 CHAFING SHIELD ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.
- 16) TORQUE CLAMPS ON D2896-1 SUPPORT 80 TO 100 IN-LB. TORQUE CLAMPS ON D3189-1 CHAFING SHIELD 40 TO 50 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

WAS:

- 14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

											DQA	Date	: :	
NCR:	Yes	/ No				WORK ORDER NON-O	COI	NFORM	MANCE / UP	DATE				
						•				QA Closed	: Date	: :		
Work Ord	er.					DISPOSITION	AGAINST DEPARTMENT/PROCESS							
Work Order: Part No. NCR No.						Rework Scrap Use-as-is Work Order Update	Scrap Machining Small Fa Use-as-is Thermoforming Finishin			Crosstube Small Fab Finishing Composite	4	Water Jet od. Eng. Coor. re/Packaging Supplier	Engineering Quality Other	
Root					Descri	ption of work order update		Initial	Act	tion	Sign &			
Cause		Date	Step	Qty	C	or Non-conformance	Ch	nief Eng	Desc	ription	Date	Verification	QC Inspector	
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved														
						F	AUI	LT CATE	GORY					
Landi	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube				o/s	General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short		Grain Hardware Inspection Incomplete Instructions Incomplete/Unclear Maintenance Mislabeled Misread			Ovalized Over/Unde Part Incorre Part Lost/M Part Movee Positioned Power Loss	ect lissing l Wrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
		Ripples in	Bend			Drill Holes	1	Offset						

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

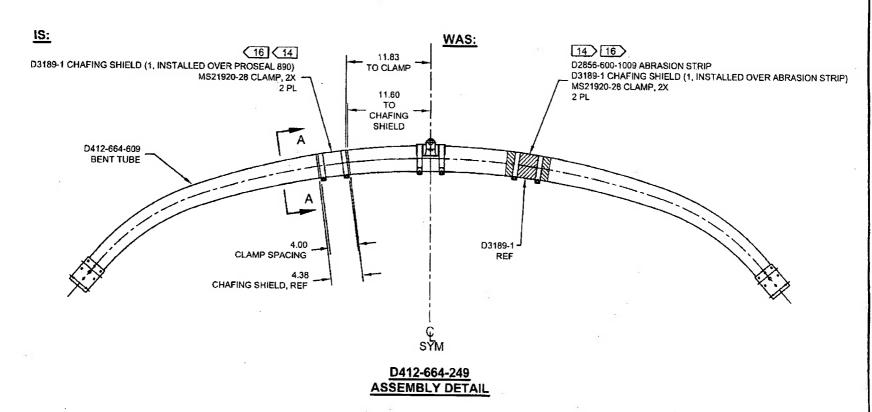
Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DRAWING NO. TITLE DART AEROSPACE LTD REV. B D.E.O. NO. SHEET NO. SCALE D412-664-249 CROSSTUBE (412 LOW AFT) **ENGINEERING ORDER** D412-664-249-B-3 SHEET 2 OF 3 NTS DRAWN 47 CHECKED MFG. APPR. DE APPR. APPROVED 12.08.21 DATE DATE 12.08.22 DATE 12.08.29 DATE 12/18.29 12.08.29 DATE





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										DQA:	Date:			
NCR:	es / No				WORK ORDER NON-C	:OI	VFOR	MANCE / UPI	DATE					
					r	_				QA Closed:	Date:			
Work Orde	ar.				DISPOSITION			AGAINST DEPARTMENT/PROCESS						
Part No					Rework Skid-tube Machining Use-as-is Thermoforming Large Fab			Crosstube Small Fab Finishing Composite	Pro Rec/Stor	Engineering Quality Other				
Root				Descri	ption of work order update		nitial	Act	ion	Sign &				
Cause	Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	ription	Date	Verification	QC Inspector		
Doc/Data														
Equip/Tooling														
Operator												100		
Material														
Setup														
Other											()			
Process											1			
Supplier														
Training						1								
Unapproved				L								J		
					F	AUL	T CATE	GORY						
Landi	ng Gear			_	General	_			_	_	_	_		
	Bending				Bend	\square	Grain			Ovalized	L	Pressure/Forced		
	Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa	ire		Over/Under	tolerance	Temperature/Cure		
	Cracks				Broken/Damaged		Inspect	ion Incomplete		Part Incorre	ct	Weld		
	Crushed	Crimped.			Burrs		Instruct	ions Incomplete/L	Jnclear	Part Lost/Mi	ssing	Wrong Stock Pulled		
	Cuffs				Contamination		Mainte	enance		Part Moved				
	Heat Tre	at			Countersink	Mislabeled				Positioned V	Vrong			

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

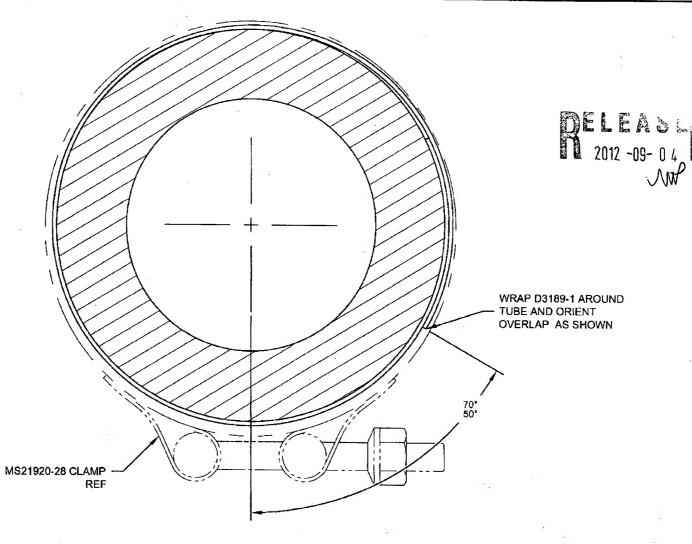
Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DRAWING	NO	TITLE								17.
11:		TITLE		REV. B	DART	AEROSPACE LT	D D.E.O. N	0.	SHEET NO.	SCALE
D412-66	4-249	CROSSTU	JBE (412 LOW	/AFT)	ENGI	NEERING ORDER	D412-6	64-249-B-3	SHEET 3 OF 3	NTS
DRAWN	9		CHECKED	<u> </u>	MFG. APF		APPROVED	MAD	DE APPR.	1(15)
DATE	12.08.	21	DATE	12.08.22	DATE	12.08.29	DATE	12.08.29	DATE 12.08.29	
						10.00.01	BATE	12.00.01	DAIL (2.00.27	



SECTION A-A
CHAFING SHIELD DETAIL
VIEW ROTATED, NOT TO SCALE

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		•									DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-CONFORMANCE / UPDATE							19. 4.
			•				_				QA Closed:	Date:	70.2
Work Ord	er:	: 1				DISPOSITION			AGAI	NST DE	PARTMENT	/PROCESS	
Part I	Part No					Rework Scrap Use-as-is Work Order Update	Scrap Machining Small Use-as-is Thermoforming Finis			Prod. Eng. Coor. Shing Rec/Store/Packaging			Engineering Quality Other
Root	-				Descr	iption of work order update		Initial	Action	1=-	Sign &	•	
Cause		Date	Step	Qty	0000	or Non-conformance	1.	nief Eng	Description		Date	Verification	QC Inspector
Doc/Data							T		***************************************		•·; <u>.</u>	· · ·	
Equip/Tooling	7.												
Öperator	П		,		120	= i;					:		
Material	П					,			,				
Setup													
Other	П				ste o	*							•
Process						4		1					
Supplier					4							<i>,</i>	•
Training		(1.0									•
Unapproved						_						·	
						9 a 10 F	AUI	LT CATE	GORY				
Landi	ng G	ìear			_	General	_	_			_		
	Ц	Bending				Bend		Grain	· · · · · · · · · · · · · · · · · · ·		Ovalized		Pressure/Forced
	Centre Not Concentric to O/S					BOM/Route	BOM/Route Hardware				Over/Under	tolerance	Temperature/Cure
	Cracks					Broken/Damaged	L	Inspecti	on Incomplete		Part Incorrect Weld		
	Crushed/Crimped.					Burrs		Instruct	ions Incomplete/Unclear		Part Lost/M	issing	Wrong Stock Pulied
		Cuffs				Contamination		Mainte	nance		Part Moved		-
		Heat Trea	it			Countersink		Mislabe	led		Positioned \	Wrong	
	Inspection Strip in Tube					Cut Too Short		Misread			Power Loss/Surge Other		

Out of Calibration

Outside Dimensions

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